

DRAFT DECISION MEMO

FOREST PLAN AMENDMENT TO ADD AMINOPYRALID TO THE LIST OF HERBICIDE INGREDIENTS ON THE WALLOWA- WHITMAN NATIONAL FOREST

U.S. FOREST SERVICE

BACKGROUND

In 2005, the Pacific Northwest Regional Forester amended all the Land and Resource Management Plans (Forest Plans) in the region to update the invasive plant management program, including approval for the use of ten herbicide active ingredients (USDA 2005b. Pacific Northwest Region Invasive Plant Program Record of Decision. Portland, OR. Referred to as R6 2005 ROD). In the R6 2005 ROD, ten herbicide active ingredients were authorized for invasive plant treatment on the National Forests in the region. The R6 2005 ROD explained that other herbicide ingredients may be added in the future.

In 2007, an independent contractor, Syracuse Environmental Research Associates, Inc., completed a Human Health and Ecological Risk Assessment for the herbicide active ingredient: aminopyralid (SERA 2007). This active ingredient was specifically developed for use in wildland settings.

The risk assessment indicated that aminopyralid would reduce the risk of adverse ecological impacts compared to herbicides approved in 2005. Aminopyralid affects broadleaf plants but not grasses or other monocots, it is effective at low rates, and it has very low toxicity to people, wildlife, birds, honeybees, earthworms, fish and amphibians. Aminopyralid formulations contain only the triisopropanolamine (TIPA) salt of aminopyralid and water – there are no other inert ingredients. This herbicide does not contain hexachlorobenzene (HCB) and degrades rapidly in sunlit water (photolysis). The formulated end-use product (Milestone) has low toxicity and is classified in EPA toxicity category IV [Caution].

The U.S. Environmental Protection agency classified aminopyralid as a “reduced risk” herbicide and stated that the use of aminopyralid as a replacement for other herbicides will decrease risk to some non-target species (U.S. EPA 2005).

DECISION

I have decided to amend the Wallowa-Whitman National Forest Land and Resource Management Plan, as amended (Forest Plan, 1990) by adding aminopyralid to the list of herbicides approved to treat invasive plants. This action is categorically excluded from documentation in an environmental impact statement (EIS) or an environmental assessment (EA). The applicable category of actions is identified in agency regulations 36 CFR 220.6(e)(16) as “Land management plans, plan amendments, and plan revisions developed in accordance with 36 CFR 219 et seq. that provide broad guidance and information for project and activity decision-making in a NFS unit.”

Currently the Wallowa-Whitman National Forest Plan Standard 16 reads (Attachment 1):

Select from herbicide formulations containing one or more of the following 10 active ingredients: chlorsulfuron, clopyralid, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, sethoxydim, sulfometuron methyl, and triclopyr.

Mixtures of herbicide formulations containing 3 or less of these active ingredients may be applied where the sum of all individual Hazard Quotients for the relevant application scenarios is less than 1.0.

All herbicide application methods are allowed including wicking, wiping, injection, spot, broadcast and aerial, as permitted by the product label.

Chlorsulfuron, metsulfuron methyl, and sulfometuron methyl will not be applied aerially. The use of triclopyr is limited to selective application techniques only (e.g., spot spraying, wiping, basal bark, cut stump, injection). Additional herbicides and herbicide mixtures may be added in the future at either the Forest Plan or project level through appropriate risk analysis and NEPA/ESA procedures.

My decision would amend Standard 16 to read:

Select from herbicide formulations containing one or more of the following 11 active ingredients: *aminopyralid*, chlorsulfuron, clopyralid, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, sethoxydim, sulfometuron methyl, and triclopyr.

Mixtures of herbicide formulations containing 3 or less of these active ingredients may be applied where the sum of all individual Hazard Quotients for the relevant application scenarios is less than 1.0.

All herbicide application methods are allowed including wicking, wiping, injection, spot, broadcast and aerial, as permitted by the product label.

Chlorsulfuron, metsulfuron methyl, and sulfometuron methyl will not be applied aerially. The use of triclopyr is limited to selective application techniques only (e.g., spot spraying, wiping, basal bark, cut stump, injection).

Additional herbicides and herbicide mixtures may be added in the future at either the Forest Plan or project level through appropriate risk analysis and NEPA/ESA procedures.

This amendment is a relatively minor modification to the invasive plant program. It would not authorize specific treatments on the ground.

Need for Change

Aminopyralid is needed to more effectively treat broadleaf invasive plants and reduce risks to people and the environment. Aminopyralid is more effective than the herbicides currently in use for many invasive plants found on Wallowa-Whitman National Forest, including hawkweeds, knapweeds and thistles. It would eliminate or reduce the use of more persistent or toxic herbicides. It poses low risk to people, fish and wildlife.

The herbicides approved in the R6 2005 ROD were selected because they were the lowest risk herbicides needed to effectively treat target species known within the region (R6 2005 ROD page 23). Aminopyralid was developed specifically for wildland use and is particularly effective on broadleaf invasive species. The product containing aminopyralid, Milestone, does not contain any inert ingredients. It also does not contain hexachlorobenzene, a carcinogenic industrial byproduct of manufacturing picloram and clopyralid, two of the chemicals that are currently approved for use on invasive plants in R6.

Aminopyralid could replace the use of clopyralid, picloram and glyphosate for some invasive plant sites. The 2007 Aminopyralid Risk Assessment indicates a comparable or lower level of risk to people and the environment than the other herbicides currently listed in Standard 16.

Treatment effectiveness is influenced by the tools available for use; the more tools available, the greater the potential effectiveness of the treatment. On page 4-18, the R6 2005 FEIS noted that “the widest variety of herbicides and herbicide families available for use [would] have the greatest potential to result in effective treatments.”

Increasing treatment effectiveness while minimizing risks associated with herbicide use would be useful to meet the R6 invasive plant program’s objectives (R6 2005 ROD Attachment 1):

- Objective 1.4 - Use an integrated approach to treating areas infested with invasive plants. Utilize a combination of available tools including manual, cultural, mechanical, herbicides, biological control.
- Objective 3.1 - Avoid or minimize public exposure to herbicides, fertilizer, and smoke
- Objective 3.2 - Reduce reliance on herbicide use over time in Region Six
- Objective 4.1 - Maintain water quality while implementing invasive plant treatments.
- Objective 4.2 - Protect non-target plants and animals from negative effects of both invasive plants and applied herbicides. Where herbicide treatment of invasive plants is necessary within the riparian zone, select treatment methods and chemicals so that herbicide application is consistent with riparian management direction, contained in Pacfish, Infish, and the Aquatic Conservation Strategies of the Northwest Forest Plan.
- Objective 4.3 - Protect threatened, endangered, and sensitive species habitat threatened by invasive plants. Design treatment projects to protect threatened, endangered, and sensitive species and maintain species viability.
- Objective 5.1 - Use an adaptive management approach to invasive plant management that emphasizes monitoring, learning, and adjusting management techniques. Evaluate treatment effectiveness and adjust future treatment actions based on the results of these evaluations.

Rationale

I have decided to approve use of aminopyralid on the Forest for invasive plant treatment because it will be more effective on invasive plants that have been particularly difficult to control, for example Russian knapweed and non-native hawkweeds. By label, it may be used in a wide variety of site conditions, including next to streams, which can increase our ability to control invasive plants in these areas.

U.S. EPA (2005) has concluded that the use of aminopyralid as a replacement for other herbicides will decrease risk to some non-target species:

“Aminopyralid is a Reduced Risk herbicide that provides reliable control of a broad spectrum of difficult-to control noxious weeds and invasive plants on rangeland and pastures, rights-of-way, and wildlife habitat areas. Aminopyralid has a favorable human health toxicity profile when compared to the registered alternatives for these use sites and will be applied at a lower rate. Its residual action should alleviate the need for repeat applications, resulting in a reduction in the amount of herbicides applied to the environment for the control of these weeds. Aminopyralid has been determined to be practically non-toxic to non-target animals at the registered application rates, compared to the alternatives, and is less likely to impact both terrestrial and aquatic plants.”

Information about aminopyralid is summarized in the following table. This information is based on the Aminopyralid Risk Assessment (SERA 2007). This table and the additional information below demonstrates that adding aminopyralid to the list of approved herbicides will not increase risk to workers and the public, non-target plants, wildlife, water, fish or any other natural resource.

Table 1. Aminopyralid Characteristics

	Aminopyralid Characteristics
Selectivity	Effective on broadleaf species. Grasses are tolerant.
Soil Activity	Soil Active, degraded by soil microbes, low toxicity to soil organisms
Half Life in Water	Degrades in water in 0.6 day in sunlight. Half-lives longer in water that is not exposed to sunlight.
Half Life in Soil	Range 5-89 days. Relatively rapid breakdown reduces potential for run-off or leaching.
Mobility	Weakly adsorbed to soil, but dissipation studies indicate it is non-persistent and relatively immobile in the field. Models indicate 0.01 % of that applied may reach stream after first significant rainfall
Human Health	Little to no risk to workers or public from proposed use. Drinking water not affected.
Bio-Concentration Potential	Does not bioaccumulate or bio-concentrate. Rapidly adsorbed and excreted and is not substantially metabolized in mammals.
Birds and Mammals	Low toxicity to birds and mammals
Fish and Invertebrates	Low toxicity to fish or aquatic invertebrates
Amphibians	Low toxicity to amphibians (data is limited).
Aquatic Plants and Algae	Aquatic plants and algae are not susceptible
Bees and Earthworms	Low toxicity to bees and earthworms

Forest Plan Amendment

I do not believe this amendment needs to be informed by a stand-alone assessment (§ 219.6 (c)) because it applies to such a narrow scope of impact and the need for change is clear and discrete.

This amendment would not adversely affect the sustainability and diversity requirements (§ 219.8 and 219.9) of the 2012 planning rule. Availability of an additional herbicide would help the Forest Service maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds in the plan area by increasing the effectiveness of invasive plant

control. Availability of this herbicide would likely benefit the structure, function, composition, and connectivity of terrestrial, riparian and aquatic habitats by effectively killing invasive plants but leaving grasses unaffected. In particular, effective herbicide use would help reduce the potential for invasive species to outcompete native plants. Including the option to use aminopyralid along with or in lieu of other herbicides would not pose additional risks to ecological integrity.

This amendment would not adversely affect the multiple use requirements of § 219.10. The R6 2005 FEIS considered how invasive plant management direction could influence relevant aesthetic values, air quality, cultural and heritage resources, ecosystem services, fish and wildlife species, forage, geologic features, grazing and rangelands, habitat and habitat connectivity, recreation settings and opportunities, riparian areas, scenery, soil, surface and subsurface water quality, timber, trails, vegetation, viewsheds, wilderness, and other relevant resources and uses. Use of an additional herbicide would not influence these findings, and could help reduce the potential for adverse effects on these values from invasive plants or invasive plant treatments.

This amendment would not influence timber harvest suitability (§ 219.11).

Risk assessment findings for aminopyralid were compared to the herbicides currently available for use on the Forest and found to be favorable (see attachment 1). SERA considered worst-case scenarios including accidental exposures and application at maximum label rates. The risk assessments meet the requirements of the Pesticide Use Handbook, FSH 2109.14 Chapter 20. Although the risk assessments have limitations (see R6 2005 FEIS pages 3-95 through 3-97), they represent the best science available. The SERA Risk Assessment is available at <http://www.fs.fed.us/foresthealth/pesticide/risk.shtml>.

Extraordinary Circumstances

I find that my decision does not have extraordinary adverse effects that would warrant further analysis and documentation in an EA or EIS. I do not believe that the use of aminopyralid in substitution of other herbicides would have extraordinary circumstances as defined by 36 CFR 220:

- *Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species.*

This amendment would have no effect on Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species. Aminopyralid does not pose any additional risks to these species than the herbicides already listed in the Forest Plan, and may benefit these species by more effectively treating invasive plants.

- *Flood plains, wetlands, or municipal watersheds.*

This amendment would not pose new risks to flood plains, wetlands or municipal watersheds. Standards for the protection of these areas would remain in place. Aminopyralid does not pose any additional risks to these types of areas. Aminopyralid may be used in a wider range of site conditions than some of the herbicides already

approved in R6, thus, it may improve conditions within these areas more effectively.

- *Congressionally designated areas such as wilderness, wilderness study areas, or national recreation areas.*

This amendment would not pose any risks to these designated areas. Eventual use of aminopyralid in these areas would be designed to meet all management direction for special areas.

- *Research Natural Areas*

This amendment would not pose any risks to Research Natural Areas. Eventual use of aminopyralid in these areas would be designed to meet existing management direction.

- *Inventoried roadless areas or potential wilderness areas.*

This amendment would not pose any risks to roadless areas or potential wilderness areas. Aminopyralid use in these areas would be designed to meet existing management direction.

- *American Indians and Alaska Native religious or cultural sites*

Ongoing consultation with American Indian tribes on invasive plant management is occurring to ensure protection of religious and cultural sites. This amendment would not have any effect on these sites.

- *Archaeological sites, or historic properties or areas*

Consultation with the State Historic Properties Office would occur as needed before herbicide or other invasive plant methods are used on the ground. This amendment would not affect any archaeological sites or historic properties.

TRIBAL CONSULTATION

The Wallowa-Whitman National Forest is in the process of consulting with the Burns Paiute Tribal Council, the Confederated Tribes of the Colville Reservation, the Confederated Tribes of Warm Springs, the Nez Perce Tribe, and the Confederated Tribes of the Umatilla Indian Reservation.

PUBLIC INVOLVEMENT

This action was originally listed as a proposal on the Wallowa-Whitman National Forest Schedule of Proposed Actions (April 4, 2017). This draft DM is available for 30-day comment.

FINDINGS REQUIRED BY OTHER LAWS AND REGULATIONS

Table 2: Compliance with Other Laws, Regulations, and Policies			
Year Enacted	Title	Summary	How applied in this project
1897	Organic Act	This Law is the foundation for multiple use and Forest Service management of National Forest System Lands	Implementation of this project follows direction in this law for the Forest Service to manage National Forest System Lands.
1947	Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)	FIFRA provides for federal regulation of pesticide distribution, sale, and use. All pesticides distributed or sold in the United States must be registered (licensed) by EPA. Before EPA may register a pesticide under FIFRA, the applicant must show, among other things, that using the pesticide according to specifications "will not generally cause unreasonable adverse effects on the environment."	Aminopyralid was registered for use by the EPA in 2005 so may be distributed, sold and used.
1969	National Environmental Policy Act (NEPA)	Creates the environmental impact statement (EIS) and environmental assessment (EA) as instruments of environmental policy. Requires public participation. Council on Environmental Quality regulations allow federal agencies to exclude certain categories of actions from documentation in EA or EIS.	Scoping was conducted as required by NEPA. This project follows FSH 1909.15 Chapter 30 requirements for categorically excludable activities.
1973	Endangered Species Act (ESA)	Provides broad protection for species of fish, wildlife and plants that are listed as threatened or endangered in the U.S. or elsewhere. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. The Act outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species, and contains exceptions and exemptions.	The project is in compliance with the Endangered Species Act. Applicable procedures were followed with respect to threatened and/or endangered species. Consultation was made with the National Marine Fisheries Service and Fish and Wildlife Service during scoping and no comments were received..
1976	National Forest Management Act (NFMA)	Requires the Secretary of Agriculture to assess forest lands, develop a management program based on multiple-use, sustained-yield principles, and implement a resource management plan for each unit of the National Forest System. It is the primary statute governing the administration of national forests.	This project was developed in full compliance with NFMA via compliance with the Wallowa-Whitman National Forest Land and Resource Management Plan 1990, as amended. The project follows appropriate standards and guidelines and management direction for the Management Allocations in the project area.

ADMINISTRATIVE REVIEW (OBJECTION) OPPORTUNITIES

The 30-day comment period for this proposed amendment begins on the day after publication of this notice in *The Baker City Herald*, the official newspaper of record. This comment period is being provided pursuant to 36 CFR 219.16(a)(2). This proposed amendment is subject to the objection procedures at 36 CFR 219 Subpart B. Only those who provide comment or express interest in this proposed amendment during this comment period will be eligible to object to the proposed decision. Each individual or representative from each organization submitting comments must either sign the comments or verify identity upon request.

While this amendment does add the herbicide aminopyralid to the list of available herbicides on the Wallow-Whitman National Forest, it does not approve specific projects or activities related to their use. A site specific analysis of effects of this herbicide on specific locations will need to be completed before this herbicide is used on the ground.

IMPLEMENTATION DATE

An estimated implementation date would be Summer 2017, when the final DM is signed. Additional analysis would occur before aminopyralid is used on the ground.

CONTACT

For additional information concerning this decision, contact: Sitka Pence, Environmental Coordinator, 541-426-5689, sitkapence@fs.fed.us.

Tom Montoya
Forest Supervisor

Date

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ATTACHMENT 1

The following tables reflect how adding *aminopyralid* to the list of approved herbicides meets the goals, objectives, treatment/restoration standards and influences effects findings in the R6 2005 FEIS.

Table 3. Effects of Adding Choice of Aminopyralid to 2005 ROD Management Direction

2005 FEIS and ROD Findings, Goals, Objectives and Standards	Effects of Adding Choice of New Herbicide - Aminopyralid
Goal 1 - Protect ecosystems from the impacts of invasive plants through an integrated approach that emphasizes prevention, early detection, and early treatment. All employees and users of the National Forest recognize that they play an important role in preventing and detecting invasive plants.	No impact. Relates to prevention, not treatment.
Goal 2 - Minimize the creation of conditions that favor invasive plant introduction, establishment and spread during land management actions and land use activities. Continually review and adjust land management practices to help reduce the creation of conditions that favor invasive plant communities.	No impact. Relates to prevention, not treatment.
Goal 3 - Protect the health of people who work, visit, or live in or near National Forests, while effectively treating invasive plants. Identify, avoid, or mitigate potential human health effects from invasive plants and treatments.	Helps to meets this goal by reducing amount of herbicide needed to effectively treat target weeds. Reduces risk compared to current herbicides available.
<u>Objective 3.1</u> Avoid or minimize public exposure to herbicides, fertilizer, and smoke.	Aminopyralid will reduce exposure by use of lower amounts of herbicide and minimizes need for repeated treatment due to its persistence in the soil. Does not increase potential for adverse public exposure to herbicides, fertilizer or smoke.
<u>Objective 3.2</u> Reduce reliance on herbicide use over time in Region Six	Effective treatment will reduce the need for herbicide use over time and would do so using lower rates than existing herbicide choices. Beneficial or neutral impact on meeting this objection.

2005 FEIS and ROD Findings, Goals, Objectives and Standards	Effects of Adding Choice of New Herbicide - Aminopyralid
Goal 4 – Implement invasive plant treatment strategies that protect sensitive ecosystem components, and maintain biological diversity and function within ecosystems. Reduce loss or degradation of native habitat from invasive plants while minimizing adverse effects from treatment projects.	Aminopyralid would decrease level of risk to wildlife, aquatic organisms, and non-target plants compared to several approved herbicides.
<u>Objective 4.1</u> Maintain water quality while implementing invasive plant treatments.	Direct application to water would be avoided. No adverse effects on beneficial uses from minor, inadvertent herbicide contact with water. Aminopyralid is currently labeled for use to the edge or water.
<u>Objective 4.2</u> Protect non-target plants and animals from negative effects of both invasive plants and applied herbicides. Where herbicide treatment of invasive plants is necessary within the riparian zone, select treatment methods and chemicals so that herbicide application is consistent with riparian management direction, contained in Pacfish, Infish, and the Aquatic Conservation Strategies of the Northwest Forest Plan.	Aminopyralid would have a neutral or beneficial impact on reaching this objective. Effective invasive plant management helps maintain and restore riparian and aquatic habitat conditions. Aminopyralid is labeled for use to the edge or water. An aquatic label is in the works. Similar or lower risk to aquatic ecosystem than other herbicides.
<u>Objective 4.3</u> Protect threatened, endangered, and sensitive species habitat threatened by invasive plants. Design treatment projects to protect threatened, endangered, and sensitive species and maintain species viability.	Projects would continue to be designed to protect species viability. Forest Plan amendment BE finds no effect to any listed species or impact to any sensitive species.
Goal 5 – Expand collaborative efforts between the Forest Service, our partners, and the public to share learning experiences regarding the prevention and control of invasive plants, and the protection and restoration of native plant communities.	Invasive plant control experts have recommended use of this herbicide.
Standards 1-9	Standards 1-9 relate to invasive plant prevention. Prevention activities are not affected by herbicide selection. Effective prevention in conjunction with early detection and rapid, effective treatment is necessary to slow the spread and reduce the impact of invasive plants (R6 2005 FEIS chapter 4.2).

2005 FEIS and ROD Findings, Goals, Objectives and Standards	Effects of Adding Choice of New Herbicide - Aminopyralid
Standard 11 - Prioritize infestations of invasive plants for treatment at the landscape, watershed or larger multiple forest/multiple owner scale.	No impact. Amendment would not influence how invasive plant priorities are set.
Standard 12 - Develop a long-term site strategy for restoring/revegetating invasive plant sites prior to treatment.	No impact. Herbicide selection does not directly influence long-term treatment/restoration strategy. Aminopyralid may improve chance for success which could influence treatment/restoration strategy at a given site.
Standard 13 - Native plant materials are the first choice in revegetation for restoration and rehabilitation where timely natural regeneration of the native plant community is not likely to occur. Non-native, non-invasive plant species may be used in any of the following situations: 1) when needed in emergency conditions to protect basic resource values (e.g., soil stability, water quality and to help prevent the establishment of invasive species), 2) as an interim, non-persistent measure designed to aid in the re-establishment of native plants, 3) if native plant materials are not available, or 4) in permanently altered plant communities. Under no circumstances will non-native invasive plant species be used for revegetation.	No impact. Herbicide selection is not likely to influence the use of native plant materials in revegetation in the long term. Broadleaf non-target plants may be susceptible to aminopyralid or other herbicides.
Standard 14 - Use only APHIS and State-approved biological control agents. Agents demonstrated to have direct negative impacts on non-target organisms would not be released.	No impact. Herbicide selection does not influence the use of biocontrols.
Standard 15 - Application of any herbicides to treat invasive plants will be performed or directly supervised by a State or Federally licensed applicator. All treatment projects that involve the use of herbicides will develop and implement herbicide transportation and handling safety plan.	No impact. This standard applies regardless of herbicide selection.
Standard 16 - Select from herbicide formulations containing one or more of the following 10 active ingredients: chlorsulfuron, clopyralid, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, sethoxydim, sulfometuron methyl, and triclopyr. Mixtures of herbicide formulations containing 3 or less of these active ingredients may be applied where the sum of all individual Hazard Quotients for the relevant	Amends Forest Plan to add aminopyralid to list of active herbicide ingredients. As described throughout this decision memo, aminopyralid would increase comparative effectiveness and reduce comparative risk when used in combination with or in place of existing herbicides. Aerial spraying is not being proposed now and is unlikely to be proposed in the future on the

2005 FEIS and ROD Findings, Goals, Objectives and Standards	Effects of Adding Choice of New Herbicide - Aminopyralid
<p>application scenarios is less than 1.0.</p> <p>All herbicide application methods are allowed including wicking, wiping, injection, spot, broadcast and aerial, as permitted by the product label. Chlorsulfuron, metsulfuron methyl, and sulfometuron methyl will not be applied aurally. The use of triclopyr is limited to selective application techniques only (e.g., spot spraying, wiping, basal bark, cut stump, injection).</p> <p>Additional herbicides and herbicide mixtures may be added in the future at either the Forest Plan or project level through appropriate risk analysis and NEPA/ESA procedures.</p>	<p>Wallowa-Whitman National Forest.</p>
<p>Standard 18 - Use only adjuvants (e.g. surfactants, dyes) and inert ingredients reviewed in Forest Service hazard and risk assessment documents such as SERA, 1997a, 1997b; Bakke, 2003.</p>	<p>No impact. This standard applies regardless of herbicide selection.</p>
<p>Standard 19 - To minimize or eliminate direct or indirect negative effects to non-target plants, terrestrial animals, water quality and aquatic biota (including amphibians) from the application of herbicide, use site-specific soil characteristics, proximity to surface water and local water table depth to determine herbicide formulation, size of buffers needed, if any, and application method and timing. Consider herbicides registered for aquatic use where herbicide is likely to be delivered to surface waters.</p>	<p>Addition of aminopyralid to herbicide selection will help reduce negative effects by reducing amount of herbicide exposure and use of a comparatively low risk herbicide. Aminopyralid poses very low risk to the aquatic environment, and is currently labeled for use up to the water's edge.</p>
<p>Standard 20 - Design invasive plant treatments to minimize or eliminate adverse effects to species and critical habitats proposed and/or listed under the Endangered Species Act. This may involve surveying for listed or proposed plants prior to implementing actions within unsurveyed habitat if the action has a reasonable potential to adversely affect the plant species. Use site-specific project design (e.g. application rate and method, timing, wind speed and direction, nozzle type and size, buffers, etc.) to mitigate the potential for adverse disturbance and/or</p>	<p>Addition of aminopyralid to herbicide selection could help reduce negative effects because it is used at such low rates, potential for adverse exposure is minimized.</p>

2005 FEIS and ROD Findings, Goals, Objectives and Standards	Effects of Adding Choice of New Herbicide - Aminopyralid
contaminant exposure.	
<p>Standard 21 - Provide a minimum buffer of 300 feet for aerial application of herbicides near developed campgrounds, recreation residences and private land (unless otherwise authorized by adjacent private landowners).</p> <p>Standard 22 - Prohibit aerial application of herbicides within legally designated municipal watersheds.</p>	<p>No impact. These standards would apply regardless of herbicide used. No aerial spraying currently occurs or is likely to be proposed for the Wallowa Whitman National Forset.</p>
<p>Standard 23 - Prior to implementation of herbicide treatment projects, National Forest system staff will ensure timely public notification. Treatment areas will be posted to inform the public and forest workers of herbicide application dates and herbicides used. If requested, individuals may be notified in advance of spray dates.</p>	<p>No impact. This standard applies regardless of herbicide selection</p>
<p>Page 4-18: “The herbicide listed in Standard #16 were evaluated based on their effectiveness in controlling the nineteen species covering the most acreage or considered of most threat in Region Six (see Chapter 3.1). In general, since the effectiveness of herbicides varies with site characteristics, alternatives that have the widest variety of herbicides and herbicide families available for use have the greatest potential to result in effective treatments.”</p>	<p>Adds effectiveness by increasing herbicide options for broadleaf species. Belongs to same herbicide family - pyridine carboxylic acids - as triclopyr, picloram and clopyralid.</p>
<p>Table 4-3: “the suite of herbicides [in Standard 16] are adequate to effectively treat knapweeds, hawkweeds, thistles, knotweeds, purple loosestrife, herb Robert, English ivy, scotch broom, false brome, rush skeletonweed, Himalayan blackberry, medusahead rye, yellow toadflax, Dalmation toadflax, leafy spurge, perennial pepperweed, tansy ragwort, sulfur cinquefoil, St. Johnswort, houndstongue, whitetop and cheatgrass.”</p>	<p>Aminopyralid is effective on many of these species. It is relatively selective and persistent, so re-treatments are less frequent, smaller amounts used so lower potential exposures to people and environment.</p>
<p>(Page 4-29): Susceptible plant species could be adversely affected by the off-site transport of picloram under a variety of different scenarios depending on local site-specific conditions that cannot be generically modeled. More tolerant plant species are not likely to be affected unless</p>	<p>Aminopyralid is less mobile and persistent in the environment and is used at lower rates than picloram.</p>

2005 FEIS and ROD Findings, Goals, Objectives and Standards	Effects of Adding Choice of New Herbicide - Aminopyralid
they are directly sprayed or subject to substantial drift (SERA, 2003–picloram).	
(Page 4-39): “If chemicals and application methods that are less damaging to non-target plants are demonstrated to be cost-effective, adjacent landowners may be more likely to use the less damaging tools.”	No impact. Counties and states are actively using aminopyralid and advocate for its use.
(Page 4-39): “Projects that comply with the [invasive plant treatment/restoration] standards ... are not likely to significantly harm native plant communities; rather ... are intended and expected to restore native plant communities where they are being adversely affected by invasive plants.”	No impact. Use of aminopyralid would be consistent with this FEIS finding.
(Table 4-7): 3 herbicides (glyphosate, imazapyr, picloram) that have a relatively higher potential to harm non-target plants	No Impact. Use of aminopyralid would not change this finding, or increase potential harm to non-target plants, assuming standards are followed and design criteria are in place to protect non-target plants, especially botanical species of concern.
(Table 4-7): Regionally, 8,369 acres of annual treatment with these herbicides that have a relatively higher potential to harm non-target plants.	Availability of aminopyralid would reduce the acreage that would need to be treated using other herbicides, especially picloram and glyphosate. On other Forests, aminopyralid is the first choice herbicide for the majority of target species.
(Table 4-7): 2 herbicides with known potential to cause toxic effects to harm honeybees.	No impact. Aminopyralid not implicated in pollinator decline, relatively low toxicity to honeybees.
(Page 4-37): At the project scale, adherence to Standards #16, #19 and #20 would reduce the severity and extent of impacts associated with runoff or drift. Standard #16 restricts aerial applications for the sulfonyleurea group to mitigate effects from offsite drift associated with this type of herbicide. Standard #16 also restricts triclopyr to selective applications, which would reduce direct effects to non-target woody species, culturally important species, and ectomycorrhizal fungi. Thus, projects that follow integrated weed management principles and adhere to the standards ... would largely avoid adverse effects to non-target plants (including culturally important plants) and fungi.”	No impact. Adding aminopyralid could reduce severity and extent of impacts. Aminopyralid would be used as part of an integrated weed management prescription.

2005 FEIS and ROD Findings, Goals, Objectives and Standards	Effects of Adding Choice of New Herbicide - Aminopyralid
(Page 4-38): At the project scale ...choices can be made to avoid situations that could potentially cause adverse effects to non-target plant species. For instance, certain herbicides can be avoided in specific areas or times of the year when/where these non-target plants may be at most risk, or more specific application methods may be used. All alternatives apply integrated weed management principles, so short-term adverse effects would largely be offset by the long-term benefits of treatment.”	No impact. Protection buffers for botanical species of interest would apply to use of aminopyralid, as well as all other herbicides.
Wildlife - “The number of plausible scenarios is estimated ... based on the suite of herbicides that could be used. It indicates the number of ways that animals could be exposed to a harmful dose of herbicide.”	Use of aminopyralid would not involve any scenarios that indicate potential risk to wildlife. If aminopyralid is used instead of glyphosate, picloram, sethoxydim and sulfometuron methyl, acreage and number of scenarios that pose risk to wildlife could be decreased.
[At the regional scale] 8,989 acres [was estimated to be] treated annually with glyphosate, picloram, sethoxydim and sulfometuron methyl, posing a plausible risk to some wildlife on these acres. For these animals to be exposed to potentially harmful doses, these herbicides would have to be broadcast sprayed over a large enough area that the animal could forage exclusively within the treatment area for one day and have 100 percent of their diet contaminated.”	Aminopyralid would be likely used instead of clopyralid, glyphosate and picloram on some of this acreage. This would reduce risk on these acres.
Plausible herbicide exposure scenarios that could result in harmful doses to birds and mammals.	Aminopyralid would be likely used instead of clopyralid, glyphosate and picloram on some of this acreage. This would reduce risk on these acres.
Number of herbicides approved that may harm amphibians	Aminopyralid associated with reduced risk to amphibians from use of aminopyralid compared to some other herbicides.
(Page 4-61): “Another example of a potential cumulative effect is from hexachlorobenzene, a ubiquitous industrial pollutant, which is found in both picloram and clopyralid. While the amounts of hexachlorobenzene added to the environment from Forest Service use of picloram and clopyralid do not represent a substantial addition in comparison to existing background levels (SERA, 2003-picloram, SERA, 2004-clopyralid), it could be considered a cumulative	Aminopyralid does not contain any hexachlorobenzene and this may reduce the amount added to the environment. The use of aminopyralid as an option replacing picloram and/or clopyralid would reduce the potential for hexachlorobenzene exposure.

2005 FEIS and ROD Findings, Goals, Objectives and Standards	Effects of Adding Choice of New Herbicide - Aminopyralid
effect.”	
“The small contribution that Forest Service use of herbicide for invasive plant control makes to the statewide totals for herbicide use indicate that the potential cumulative effect on a regional scale is very small. Likewise, the relatively small differences between the alternatives, in comparison to the totals, make insignificant any differences between the alternatives in potential for cumulative effects to wildlife.”	No impact. Use of aminopyralid would not change low Forest Service herbicide use compared to statewide estimates.
(Page 4-78): Ten herbicides are available for invasive plant treatments, two of which (picloram and clopyralid) contain the carcinogenic contaminant HCB.	Aminopyralid does not contain any hexachlorobenzene and this may reduce the amount added to the environment. The use of aminopyralid as an option replacing picloram and/or clopyralid would reduce the potential for hexachlorobenzene exposure.
“For herbicide treatments assuming typical application rates and exposure factors no worker exposures exceed an HQ of 1. For herbicide treatments assuming typical application rates and exposure factors no public exposure scenarios exceed the target HQ of 1. One accidental drinking water exposure (to NPE) to spill-contaminated water exceeds the RfD (HQ = 5).	No impact. Herbicide transportation and handling safety plan minimizes risk of spill. Use of aminopyralid is not associated with harmful exposure scenarios to workers or the public. NPE use would not be increased by approval of aminopyralid.

Table 4. Characteristics and Risks of aminopyralid compared to 2 other herbicides currently approved in R6 (clopyralid and picloram). Aminopyralid would likely be used as a substitute for these two ingredients for some broadleaf target sites.

	Aminopyralid	Clopyralid	Picloram	Comments
Selectivity	Same as Picloram	Selective for broadleaf species in only 3 plant families (legume, composite and knotweed). Grasses are tolerant.	Selective for many broadleaf species in many plant families. Grasses are tolerant	As with all herbicides, care must be taken to reduce non-target vegetation impacts to susceptible species.
Soil Activity	Soil Active, Degraded by soil microbes, Low toxicity to soil organisms	Degraded by soil microbes, Low toxicity to soil organisms	Soil Active. Microbial activity inhibition likely at rates used by FS.	PDC and buffers limit picloram use. Aminopyralid and clopyralid can be used closer to surface water bodies.
Half Life in Water	Degrades in water in 0.6 day in sunlight. Half-lives longer in water that is not exposed to sunlight.	8-40 days	2.6 days.	Aminopyralid is rapidly broken down in water that is exposed to sunlight. Longevity in ground water addressed by following label directions and additional PDC (for instance no application within 200 feet of wells).
Half Life in Soil	Range 5-89 days. Relatively rapid breakdown reduces potential for run-off or leaching.	Average 40 days (range 12-70 days). Relatively rapid breakdown reduces potential for run-off or leaching	Average 90 days (range 20-300 days). Higher potential for run-off and leaching.	
Soil Mobility	Weakly adsorbed to soil, subject to percolation and runoff.	High soil mobility. Label advisory to avoid application to permeable soils. Monitoring found 0.01 % of that applied may reach stream after first significant rainfall.	Very high mobility in soil. Label advisory to avoid application to permeable soils. Monitoring found 1-6% of application mobilized and reached drainage channels after first significant rainfall.	Field dissipation studies show little or no offsite movement of aminopyralid due to rapid breakdown and very low application rate. Less toxic to soil and other organisms.
Human Health	Little to no risk to workers or public from proposed use. Drinking water not affected.	Little to no risk to workers or public from proposed use. Drinking water not affected.	Little to no risk to workers or public from proposed use. Drinking water not affected.	Exposures below a level of concern, PDC further reduce exposure
Bio-Concentration Potential	Does not bioaccumulate or bio-concentrate. Rapidly adsorbed and excreted and is not substantially metabolized in mammals.	Does not bioaccumulate or bio-concentrate (manufacturing byproduct HCB does bioaccumulate). Rapidly adsorbed and excreted and is not substantially metabolized in mammals.	Does not bioaccumulate or bio-concentrate (manufacturing HCB does bioaccumulate). Rapidly adsorbed and excreted and is not substantially metabolized in mammals.	Aminopyralid reduces potential for HCB exposure in the environment. Minimizes risk to raptor egg shells.

	Aminopyralid	Clopyralid	Picloram	Comments
HCB	None	Contaminated with hexachlorobenzene (HCB) (less than that in picloram). HCB is a persistent carcinogen and it bio-accumulates. Exposure levels far below level of concern. Does not present any substantial cancer risk.	Contaminated with hexachlorobenzene HCB (more than clopyralid). Exposure levels far below level of concern. Does not present any substantial cancer risk.	Reduction of HCB in environment is a positive attribute of aminopyralid.
Birds and Mammals	Low toxicity to birds and mammals	Low toxicity to birds and mammals	Low toxicity to birds and mammals	No concern.
Fish and Invertebrates	Low toxicity to fish or aquatic invertebrates	Low toxicity to fish or aquatic invertebrates	Exposures exceed level of concern for listed fish at typical and highest application rate, low toxicity to invertebrates	PDC and buffers reduce potential for picloram to enter streams. Aminopyralid can be used to the water's edge.
Amphibians	Using fish as surrogate, no adverse effects	Using fish as surrogate, no adverse effects	Using fish as surrogate, potential adverse effects to amphibians at typical and highest application rates	PDC and buffers to avoid use of picloram in riparian habitats.
Aquatic Plants and Algae	Aquatic plants and algae are not susceptible	Aquatic plants and algae are not susceptible	Low toxicity to algae, aquatic plants are susceptible	PDC and buffers to avoid use of picloram in riparian habitats.
Bees and Earthworms	Low toxicity to bees and earthworms	Low toxicity to bees and earthworms	Low toxicity to bees and earthworms	No concern.

References

SERA (Syracuse Environmental Research Associates, Inc.). 2007. Aminopyralid Human Health and Ecological Risk Assessment

Milestone EPA Fact Sheet and Product Label

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US Forest Service. 2005b. Pacific Northwest Region Invasive Plant Program Record of Decision. Portland, OR.: USDA Forest Service, Pacific Northwest Region. Referred to as R6 2005 ROD

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